REMARKS

Claims 1-23 remain in the present application. Claims 1, 10 and 22 are hereby amended. No new matter is being added.

Claim Rejections -- 35 USC 102 and 35 USC 103

Claims 1-23 stand rejected under 35 USC 102 as being anticipated by Ebrahimi (USP 5,835,237) or under 35 USC 103 as being unpatentable over Ebrahimi in view of Bonneau et al. These rejections are respectfully traversed.

Claim 1, as amended, now recites as follows.

1.   A method for image processing, the method comprising:
identifying candidate edge points in an image being processed;
applying a point-based threshold to the candidate edge points;
linking edge points passing the point-based threshold to generate candidate edge chains;
determining a dynamic chain-based threshold function that is dependent on at least one characteristic of the image being processed;
applying the dynamic chain-based threshold function to the candidate edge chains; and
removing from a set of edge chains those candidate edge chains that fail to pass the dynamic chain-based threshold function.

(Emphasis added.)

As recited in claim 1, the claimed method of image processing now specifies **two threshold steps**. First, a **point-based threshold** is applied to screen candidate edge points. Then, after the edge points passing the threshold are linked to generate candidate edge chains, a second **dynamic chain-based threshold** function is applied to screen the candidate edge chains.

As discussed by the Examiner, the Ebrahimi reference discloses an edge detection method that uses adaptive thresholding. However, Ebrahimi applies adaptive thresholding merely to edge **points**, not to edge **chains**. For example, Ebrahimi recites, "In order to correctly extract the dominant **points** from noise, a threshold is applied in the

threshold generation processing unit 33." (Ebrahimi, column 11, lines 57-59, emphasis added.)

In regards to the 2-D edge detection, Ebrahimi states that the "this 2-D edge detection apparatus 40 is constructed by **applying two separate 1-D singular point detection procedures** along the two axes. Each subblock of this 2-D edge detection apparatus 40 represents the same structure as aforementioned singualar point detection apparatus of FIG. 13." (Ebrahimi, column 13, lines 44-49.)

In contrast, while the claimed invention also applies point-based thresholding to candidate edge points (as Ebrahimi discloses), the claimed invention **goes further** and, after linking the points, applies **dynamic chain-based** thresholding to the candidate edge chains. The claimed invention advantageously filters or screens the candidate edge chains while using a dynamic threshold so as to avoid categorizing too many or too few chains as extraneous chains.

Hence, applicants respectfully submit that Ebrahimi teaches against the invention recited in claim 1. Ebrahimi teaches two-dimensional edge detection by two separate 1-D point detection procedures, where an adaptive point threshold is applied in each dimension. In contrast, the claimed invention detects edges using first point-based thresholding, then after linking the points into candidate chains, applies dynamic chain-based thresholding to the chains.

Bonneau et al. discloses a technique related to wavelet and fractal encoding. Bonneau et al. does not disclose or suggest the claimed invention as discussed above.

Therefore, applicants respectfully submit that claim 1 is now patentably distinguished over Ebrahimi and over Ebrahimi combined with Bonneau et al.. Claims 2-9 depend from claim 1. Hence, for at least the reasons discussed above in relation to claim 1, claims 2-9 are also now patentably distinguished over the cited art.

Claim 10, as amended, now recites as follows.

10.   An apparatus for image processing, the apparatus comprising:

    a candidate edge chain generator configured to **generate candidate edge chains by linking edge points** in an image being processed;
        means for determining a dynamic chain-based threshold function that is dependent on at least one characteristic of the image being processed; and
        a threshold applicator for **applying the dynamic chain-based threshold function to the candidate edge chains.**

    (Emphasis added.)

    Claim 10, as amended, now recites an apparatus in which candidate edge chains are generated by **linking edge points**. Further, a **dynamic threshold is applied to these chains** by the apparatus. Hence, for at least the same reasons discussed above in relation to claim 1, claim 10 is also patentable over Ebrahimi and Bonneau et al.

    Claims 11-21 depend from claim 10. Hence, for at least the reasons discussed above in relation to claim 10, claims 11-21 are also now patentably distinguished over the cited art.

    Claims 22 and 23 also require the application of a **dynamic threshold to candidate edge chains**. Hence, for at least the same reasons discussed above in relation to claim 1, claims 22 and 23 are also patentable over Ebrahimi and Bonneau et al.
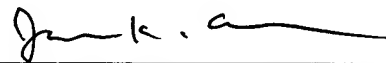
Conclusion

Applicants respectfully submit that claims 1-23 are now patentably distinguished over the cited art. Favorable action is respectfully requested.
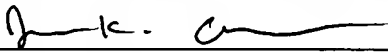
Respectfully submitted,
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Dated: __March 28, 2005__   By: _____

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